

of carrying out the invention. The Examiner believes that the specification lacks a specific explanation of Applicant's effective amounts and methods for the treatment of scalps to promote hair growth and that undue experimentation would be required to practice the claimed invention. In addition, the Examiner states that the general information given by the examples and graphs seems cloudy because there is no clear view of what was done to each different scalp. The Examiner rejects Claims 1-36 for the same reasons set forth in the objection to the specification. Applicant respectfully traverses and requests reconsideration.

With respect to best mode, Applicant has disclosed in the specification his best mode of carrying out the claimed invention, as known at the time of filing the application. Applicant thus requests withdrawal of this rejection and clarification with respect to why the Examiner believes that the specification fails to present the best mode.

With respect to enablement, Applicant respectfully submits that the specification fully enables one skilled in the art to perform the claimed invention without undue experimentation. The claims are generally drawn to compositions, pharmaceutical preparations and methods of promoting hair growth. The specification clearly sets forth the various components of the compositions and pharmaceutical preparations, as well as the preferred dosages. In particular, Applicant directs the Examiner to pages 4-7 and page 8, lines 1-20, wherein specific vasodilators, estradiols and 5- $\alpha$ -reductases, as well as specific dosages, are set forth. Moreover, the specification clearly describes the methods of the present invention wherein compositions and pharmaceutical preparations are administered to a human or other mammal to promote hair growth. Again, Applicant refers the Examiner to the specification, specifically page 3, lines 19-34, page 4-7 and page 8, lines 1-20, wherein modes of administration and dosages are described. Applicant thus submits that with the modes of administration and dosages clearly set forth in the specification, one skilled in the art could practice the claimed invention without undue experimentation. Applicant questions what remaining information the Examiner believes is necessary to carry out the invention.

Finally, with respect to the results set forth in the figures, as explained in Specific Example 1, these results are the mean data for nine subjects from an experiment to determine if there was a relative microvascular insufficiency and associated tissue hypoxia to regions of bald scalp in men with male pattern baldness as compared to hair bearing scalp in men with no baldness. Those experiments identified a relative microvascular insufficiency and local tissue hypoxia. The compositions and methods of the present application are based on this newly identified pathophysiology which was not obvious to one skilled in the art.

Applicant thus respectfully requests withdrawal of the 35 U.S.C. §112 objection and rejection.

### **35 U.S.C. §103**

The Examiner has rejected Claims 1-36 under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,015,470 to Gibson. The Examiner has stated that the claimed compounds as ingredients in hair-growth compositions are old as exemplified by the patent, Applicant's own disclosure or the articles cited by Applicant and, to speculate on the utility of various mixtures of known compounds would have been obvious to a skilled artisan. The Examiner also cites U.S. Patent No. 4,596,816 to Chidsey, III et al., as a patent of interest to show an "example of a composition using compounds for hair growth." Applicant respectfully traverses and requests reconsideration.

Gibson generally discloses a composition comprising a) a chemical inhibitor chosen from proteoglycanase inhibitors, glycosaminoglycanase inhibitors, glycosaminoglycan chain uptake inhibitors and mixtures thereof; and b) a vehicle for the chemical inhibitor. Chidsey, III et al. generally discloses 6-amino-1,2-dihydro-1-hydroxy-2-imino-4-piperidinopyrimidine, commonly referred to as "minoxidil" and methods of using same. Neither Gibson nor Chidsey, III et al. discuss, mention or suggest the claimed compositions and methods of the present invention wherein the compositions comprise two or more agents selected from the group of vasodilators, estradiols and/or 5- $\alpha$ -reductase inhibitors. The Examiner appears to be using Gibson and Chidsey, III et al. to show that compositions comprising various

compounds are known to improve hair growth and thus the specific compositions and methods of the present invention are obvious. However, Applicant's combination of compounds is not rendered obvious merely by the fact that other hair growth promoting compositions comprising other compounds are known. Likewise, the disclosure in Chidsey, III et al. of minoxidil does not render the specific claimed compositions and methods of the present invention obvious wherein the compositions and methods may comprise minoxidil as one agent.

The compositions, pharmaceutical preparations and methods of the present invention represent an improvement in the art, wherein a combination of compounds are used to promote hair growth. The compounds are combined in such a way as to enhance hair growth by affecting the biochemical reactions involved in hair growth. As described in the specification and above, it was the discovery of local tissue hypoxia, which was not previously known by those skilled in the art, as the underlying pathophysiology by which age, genetics and androgens interact to cause baldness, which led to the claimed compositions, pharmaceutical preparations and methods of the present invention. For example, as set forth in the Discussion of Results, while the administration of estradiol serves to locally decrease the DHT/estradiol ratio, thereby decreasing the number of hair follicles in the resting phase, adequate O<sub>2</sub> is required to achieve keratin synthesis and hair growth, and thus the combination of estradiol and vasodilator is claimed. (See page 11, lines 27-36 and pages 12-16 of the specification).

In conclusion, the specific combination of compounds as used in the claimed methods and claimed in the present application is clearly not discussed, referred to or mentioned in the Gibson patent, Chidsey, III et al. patent or any of the references cited in the specification of the application. Therefore, none of these references, either alone or in combination, render the present invention obvious. Applicant therefore respectfully requests reconsideration and withdrawal of the rejection.

Applicant respectfully submits that the claims now stand ready and in condition for allowance and such allowance is courteously solicited. Should the Examiner have any

questions or wish to further discuss this matter, it is requested that the undersigned attorney be contacted at (810) 641-1600.

Respectfully submitted,

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